Lake County Soil and Water Conservation District

CrosSection

Volume XX, Issue 3
Third Quarter 2011

Spring

INSIDE THIS ISSUE

Water Quality in Rain Barrels and Rain Gardens.

Beth Landers, Coastal NPS Pollution Education Specialist

Lake County Soil and Water Conservation District has been promoting the installation of rain barrels and rain gardens as simple, low-cost ways homeowners could improve water quality and reduce runoff quantity after each rainstorm. Along the way we have been asked many good questions and have followed research into the effectiveness of these systems.

What is in rain water? The physical and chemical composition of rainwater varies locally and regionally. Solid particles, such as dust and soot can be washed from the air by rain. These particles come from power plants, industrial sites, agriculture, and other sources, and can supply chemical pollutants as well. Some ions are also carried out of the air by precipitation, including chloride, nitrates, sulfates, potassium, and phosphates, and the concentration of these can change the acidity of the rain.

What is the rain water carrying off of my roof? Some chemicals that could come from the roof include heavy metals, hydrocarbons, pathogens, and pesticides. Hydrocarbons accumulate on roofs (and lawns and gardens) in areas of heavy traffic and industry. They are typically the result of burning fossil fuels. Pathogens (germs) come from animal activity on your roof – the waste products of birds, rodents, and insects. Agricultural dust that settles on your roof can carry fertilizers and pesticides.

What does my roof material contribute to water pollution? There are also many variables that determine what rainwater is picking up from a residential roof, including all of the variables that affect rain chemistry. Your roofing material may also contribute to changes in water chemistry. Metal roofs can react with acidic rainwater to add heavy metals to the rainwater. Wood or asphalt shingles that are treated to reduce rot and root penetration can contribute those pesticides as well.

So is it safe? Roof runoff is non-potable; it is not safe for people or animals to drink unless it is treated to remove bacteria. However, it is generally safe for irrigation, car washing, flushing toilets, etc. Many contaminants, such as nitrates and phosphates will be taken up by plants. The heavy metal concentrations in runoff are similar to the quantities in rainwater before it reaches a roof, with the exception of zinc. If you are using water collected from a galvanized metal roof to irrigate plants for consumption, you may want to test the soil for zinc accumulation. Remember, these substances aren't caused by the addition of a rain barrel or a rain garden, but were running off your roof already, and are present in the rainwater that falls on your garden. By using a rain barrel or building a rain garden you are keeping them out of streams and lakes.

How can I make sure I'm safe? Simple precautions include washing your hands with soap and treated water after using water from your rain barrel. You should also wash produce with treated water before you eat it. You can minimize the bacterial load in your rain barrel system by making sure leaves and debris don't accumulate in your gutters and by using the water in your barrel so that it doesn't become stagnant. Applying irrigation water to the soil instead of the edible parts of the plant will also reduce the risk of bacteria being on your food. If you are concerned about zinc, submit a soil sample for testing or avoid watering plants intended for food.

For more information on rainwater composition check out the National Atmospheric Deposition Program at http://nadp.sws.uiuc.edu. Rain barrel safety information can be found at www.bae.ncsu.edu/stormwater/PublicationFiles/RooftopRunoff2009.pdf

A rain barrel system with a diverter is designed to collect up to 55 gallons of rainwater from your roof and store it for your non-potable use.

A rain garden is a shallow depression in your landscaping designed to collect rainwater from your roof and allow it to soak into the ground.

Surface and Subsurface Drainage Issues and their Sources

Julia Kokavec, Conservation Intern

Lake County received nearly twice the average amount of precipitation for the month of April and was about 10 inches above the average for the year by mid-June. And as summer stretches out, cumulative rainfall numbers are a foot over average. This high amount of precipitation has caused many residents to notice poorly drained yards, pooling of water and/or wet basements.

When dealing with excess surface water, the first step is to see if there has been an alteration to the natural drainage path that may be causing the problem. Did you or a neighbor "fill in a low spot" that was actually a swale, ditch, or ephemeral stream? If this is the case, reverting back to the natural path will usually fix the problem.

Subsurface drainage can be quite different from surface drainage and the specific problem must be understood in order to create solutions. Subsurface drainage in Lake County usually deals with a soil's high water table characteristics. A water table is simply the level at which the soil is saturated with water and the water table can fluctuate by several feet throughout the year depending on soil type, landscape and weather conditions.

Lake County has over 50 soil types and 29 of those are characterized as having either an apparent or perched water table. An apparent water table is a thick zone of saturated pores in the soil. A perched water table stands above an unsaturated zone separated from the permanent water table by an impermeable layer of soil or rock material, such as a clay lens or shale layer. A seasonal water table exists when typical ground water conditions rise during wetter times of the year.

If your subsurface drainage issues are being caused by the seasonal high water tables, they will eventually dry as summer approaches. This would be the best way to address the problem because you would not be altering any natural drainage paths and saving money. If you are encountering wet basements because of the high water table make sure you have a sump pump that is functioning correctly and is the correct size for the amount of water it is processing. You should also see if your basement has footer drains and making sure those are working properly. In extreme cases, where you may live in an area that has a constant high water table, one of the options you may chose is to install drainage tile in your yard. Going in this direction though will require permits often requires you to hire a contractor.

For any concerns or questions about the drainage issues in your yard, you can call the District and set up a site visit where we can give any advice on your specific situation.

Drainage laws in Ohio

There is no set rule for dealing with surface water drainage issues in Ohio, since many of the current guidelines have been developed through case law rather than legislation. Generally speaking, though, each landowner has a right to dispose of excess surface flow (water that is not in a defined channel) onto downhill properties, and also has the responsibility to accept excess water from uphill neighbors. In a rural setting, this includes only the natural flow, and not additional water that might be generated by tiling or other drainage improvements. However, in an urban setting, case law has not applied this evenly. In urban settings, water is treated as a 'common enemy' and each landowner has a right to reasonable use of their property so long as it doesn't unreasonably damage another's use of their property.

If the above paragraph seem vague, contradictory, or confusing, it is. In short, there is no hard, fast rule that we can apply to a drainage dispute between neighbors. Lake SWCD can evaluate a property and suggest solutions that the landowner can install or hire a contractor to install. The landowner is responsible for necessary permits and costs. Since there are no set rules, there is also no set enforcement mechanism if you feel that your neighbor is unreasonably damaging your property. This means that disputes can wind up in civil court if neighbors cannot reach a resolution themselves. There a judge can decide what is 'reasonable' and what isn't. Ideally, neighbors will work together to solve a shared drainage issue.

Lake County Soil and Water Conservation District 65th Annual Meeting

Tuesday, September 20th, 2011 at Grand River Cellars in Madison

Polls open at 6:00 ✧ Social Hour begins at 6:30 ✧ Business Meeting at 7:30

The 65th Annual Meeting will include an appetizer buffet featuring pizzas, bruschetta, brie and pear, and assorted cheeses; a cash bar; and the infamous door prize drawing. An election will be held for one Supervisor.

The guest speaker will be **Judy Semroc**, a Conservation Specialist with the Cleveland Museum of Natural History. She will be speaking about **native pollinators**.

Meet the Candidates:

Brad Shawhan of Mentor is the Park Manager of Cleveland Metroparks North Chagrin Reservation, where he works to restore the natural environment and provide public outreach on environmental issues. Mr. Shawhan has previous experience with the City of Mentor and in wholesale nursery operations, with practical experience in rural and urban land development issues.

Larry Klco of North Perry and his wife Tina own Rainbow Farms, a produce and pick-your-own operation. Mr. Klco is a member of the North Perry Council and has served on the Lake County Planning Commission and the Farmland Task Force, as well as the North Perry Planning Commission, the Comprehensive Planning Committee, and the Board of Zoning Appeals.

Derek Elshaw of Eastlake is the owner of Corporate Tax Consulting LLC and has project management experience with several organizations. He is a former Eastlake City Council member and president, and helped create their Comprehensive Development Plan. Mr. Elshaw also introduced oil and gas well legislation to address safety and environmental concerns.

Full candidate biographies and personal statements can be found on the Annual Meeting page of the Lake SWCD website.

Yes! I would like to attend!
RSVP by September 12 to Lake SWCD

Name:
Address and City:
Daytime Phone:
E-mail:
Number Attending: X $18 Total enclosed:

Arcola Creek Watershed News

Maurine Orndorff, Arcola Creek Watershed Coordinator

Find **Arcola Creek Watershed** on Facebook! Pictures of the Beach Clean Up and spring flooding.

The first beach clean-up of the season was held on Sunday, April 17. The Adopt-a-Beach event was organized by Samantha Touarti, a Lakeland Community College student interning with Lake Metroparks. Adopt-a-Beach is a program of the Alliance For The Great Lakes. We had about fifteen volunteers for the event and were able to recycle two-thirds of the trash that was collected. One volunteer I spoke to said that she lives in the neighborhood and sees the trash when she runs. She was very happy when she saw the advertisement for the clean-up and invited her friends to help her. We're planning a fall clean-up with Lake Metroparks for Saturday, September 24 from 9:00-11:00 a.m. Mark your calendars, and let us know if you plan to come.

The development of the Arcola Creek Watershed Action plan is underway. A watershed action plan is a collaboration of local stakeholders to describe the physical, ecological and social characteristics of the watershed and its communities, to identify problems that affect the watershed functions and to find and implement solutions to the problems. A healthy watershed collects water from precipitation and stores some of it in the soil, wetlands, floodplains and aquifers, where contaminants are filtered out and impurities broken down. It provides habitat for plants and animals, and water for human uses. Human activities in the watershed alter the natural watershed functions which, over time, can result in increased flooding, reduced water quality and a decline in the biodiversity in the watershed.

I will be working with the local community to create the plan. If you have concerns or ideas about the Arcola Creek watershed, give me a call at 440-350-5863.

Clean Beaches Start At Home!

Beth Landers, Coastal NPS Pollution Education Specialist

One of the best parts of living in Northeast Ohio is the ability to head to the beach at the drop of a hat. Anyone in Lake County is within a half hour drive of one of our many Lake Erie beaches. However, that trip can become a disappointment if the water and sand conditions are unsavory. Litter or an over-abundance of algae can make the water and the sand unappealing. Signs warning you of high bacterial counts may require you to pack up and go home.

A healthy, fun-filled day at the beach starts at home. Everyone who lives in Lake County also lives in the Lake Erie watershed. This means that the rain that falls at your house will eventually end up at the beach, and can carry with it pollutants from your yard. This can take hours or years, depending on whether your runoff goes into a stormwater system or soaks into the ground.

The problem:	The source:	The fix:
Ugly mats of algae and seaweed.	Too many plant nutrients in the water. They can come from fertilizer runoff, or dumping of yard waste in or along streams.	♦ Test the soil before you add fertilizer and add only what the test indicates your soil needs. ♦ Sweep up any fertilizer that ends up on sidewalks or the street. ♦ Compost your clippings and leaves well away from surface water.
"Beach Closed Due To Contamination."	Pathogens from human or animal waste	♦ Pick up after your pet and dispose of the waste properly. ♦ Make sure your septic system is well-maintained. ♦ Do not feed geese and ducks in public areas – the overpopulation that results increases the amount of waste that washes into the waterways.
Kids are finding "buried treasure" in the form of trash.	Littering and unsecured garbage in the watershed being blown or washed into streams and storm drains.	♦ Keep garbage can lids tightly secured, and put the garbage out as close to the time it is picked up as possible. ♦ Take a garbage bag with you to the beach or on the boat. ♦ Don't litter, and be careful not to let trash get away from you.
The water looks like chocolate milk	Erosion in the watershed has allowed the streams and rivers to carry sediment (and possibly other contaminants) into Lake Erie	♦ Maintain a healthy plant community on your property. Areas near ditches, streams, and drainage structures are especially important. ♦ If you have areas of open soil, add mulch, grass, or other plants ♦ Unchecked erosion damages two ecosystems – the one which lost the soil, and the one the soil washes into.

Below are some common health and aesthetic concerns of beachgoers and what conditions in the watershed cause them.

For more information on water quality at Lake Erie beaches, you can check http://www.glin.net/beachcast/ for the latest conditions. For more information about nonpoint source pollution, please contact Lake SWCD at 440-350-2730 or check out our website at www.lakecountyohio.gov/soil.

Attracting Pollinators with a Rain Garden

Beth Landers, Coastal NPS Pollution Education Specialist

A rain garden is a slight depression in the landscape designed to collect rain water runoff from a roof, sidewalk, patio, driveway, or compacted soil. The excess runoff is then allowed to soak into the ground, recharging the groundwater and decreasing surface water runoff and urban flooding.

Research shows that a rain garden will absorb the same amount of runoff whether it is planted in perennials or in turf grass. The low berm around the rain garden will keep the water in place long enough to soak in. However, maintaining a lawn within a berm is a bit more difficult, especially under wetter conditions. The long-term effects of compaction because of lawn mower use are also unknown.

Lake SWCD recommends native perennials for rain garden plantings. Perennials are a bit more expensive to purchase, but once they are established, they do not need replaced. Native plants have adapted to our unique northeast Ohio climate, including heavy snows and cool springs. Native plants will also provide food and habitat for the native pollinators in northeast Ohio. Many plants that are suitable for rain gardens are also popular with pollinators, including joe-pye-weed, bee balm, milkweed, beardtongue, goldenrod, asters, and coneflower.

In addition to creating a food source by filling your rain garden with flowering native plants, you can also help out pollinators by providing for other needs. Butterfly houses are easily found at many garden centers. There are also free plans available in the internet. Butterflies will also take advantage of a shallow muddy spot for their water and mineral needs. Your rain garden should be well-mulched, but you can create a mud patch in a different sunny spot. All native insects will benefit by reducing pesticide use. If you must use an insecticide, chose one that targets the specific nuisance species, use it in the minimum amount necessary, and clean up afterwards.

By constructing a rain garden, you can improve water quality in our streams; if you are careful in your plant selection, you can also improve habitat availability for our native butterflies, beetles, and solitary bees.

What a Wet Year Means for Lakefront Landowners

Beth Landers, Coastal NPS Pollution Education Specialist

Lake Erie water levels and water conditions play a key role in forming near-shore features. They are affected by many factors.

Winter temperatures in the upper Midwest: If Lake Superior, Lake Michigan and Lake Huron ice over early in the season and the ice lingers late into spring, Lake Erie will rise. This is because of the reduced evaporation rates in the upper lakes.

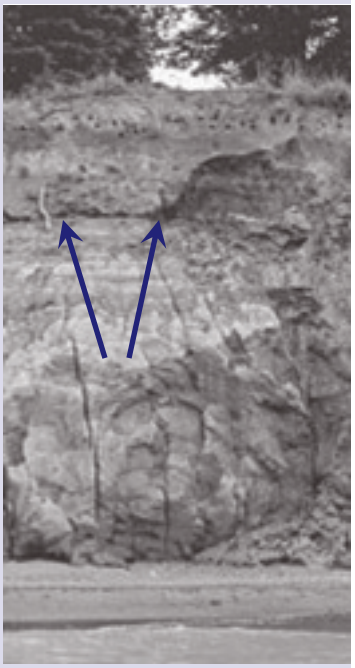
Wind speed, direction, and duration: Typically, winds on Lake Erie travel the length of the lake. If that changes, the water can begin piling up along the windward shore. The lake can actually rise by several feet in a strong wind, pushing waves farther inland. The water level on the lee shore drops, exposing more beach area. As the winds die down again, the water sloshes back. This is called a seiche.

Sediment load: If the rivers flowing into Lake Erie are carrying a larger sediment load, it will feed that sediment into the lake currents near the mouth of the river. Since most rivers are also ports, this excess material must be dredged and dumped further out into the lake. Suspended sediment will be carried to the east by the longshore current.

Coastal construction projects: In the past, many seawalls, groins, and breakwaters have been built to 'protect' specific properties or areas. These projects often do create sandy beaches in one area, but will accelerate erosion on the downshore side (to the east in Lake County).

Ground water seeps: excessive rainfall and snow melt may soak into sandy soils then hit a layer of glacial till that doesn't allow further downward movement. That water will then move horizontally, seeping out of the bluff. This excess water can cause ground movement along the boundary. Septic systems can contribute to this type of slope failure.

Coastal areas are subjected to a complex set of natural conditions that make them hard to predict. They are also subject to regulations from federal, state and local levels because multiple agencies have responsibility to protect Lake Erie for transportation, fishing, navigation, drinking water, and many other uses for citizens of two countries. For more information on coastline land use issues, contact Lake SWCD at 440-350-2730 or online at www.lakecountoyhio.gov.



Boundary between soil and glacial till marked by purple arrows. Excess water moves laterally along this contact.

Lake County Soil & Water Conservation District
125 East Erie St.
Painesville, OH 44077

Non-profit org
U.S. Postage
PAID
Painesville OH
Permit #830

Recycled Paper

Who Wants To Be a Conservationist?

Water, water everywhere edition! What do you know about Lake County hydrology?

1) The Grand River is officially flooding when it exceeds what measurement at the Walnut Street Bridge in Painesville:

A) 6.5 feet B) 8 feet

C) 9.5 feet D) 12 feet

2) This can cause a perched water table to develop:

A) subsurface clay lens B) poorly permeable bedrock

C) fragipan D) compaction

3) If your soil is prone to developing a seasonal high water table, the simplest solution is to:

A) install a leach field B) install a curtain drain

C) install drain tile D) wait for summer

4) Surface runoff moves across the landscape in a flat sheet of water. Groundwater runoff moves through the soil and

A) recharges streams during dry spells B) creates underground rivers

C) leaves the water cycle D) flows directly into Lake Erie

5) Ohio has clear laws on a landowner's rights and responsibilities related to drainage issues. True or false

Answers: 1) B, 2) A, B or C, 3) D, 4) A, 5) False

LAKE COUNTY SOIL & WATER CONSERVATION DISTRICT
125 E. Erie St., Painesville, OH 44077
Phone: 440-350-2730
Fax: 440-350-2601
East End: 428-4348 ext. 2730
West End: 918-2730
1-800-899-LAKE ext 2730
Office Hours: Mon.-Fri. 7:30 am-4:00 pm
E-mail: soil@lakecountyohio.gov
Web site: www.lakecountyohio.gov/soil

Dan Donaldson,
District Administrator 350-2030
Chad Edgar,
Resource Protection Specialist 350-2032
Beth Landers,
Coastal NPS Pollution Education Specialist 350-2033
Maurine Orndorff,
Arcola Creek Watershed Coordinator 350-5863

Al Bonnis, District Conservationist, NRCS 437-5888

The public is invited to attend Lake SWCD's monthly Board meetings, held the fourth Tuesday of the month at 3:00 pm at 125 East Erie St., Painesville. Meeting announcements appear under the public agenda in the News-Herald and on the Lake SWCD website. Please call in advance to let us know you will be attending.